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1. (currently amended) A system for optimizing a performance of an operating c
least one aerial vehicle during at least one close-in air combat the system comprising:
an assessment information database implemented on at least one computer; and
an assessment and guidance software application implemented on the at least on
computer for providing in real-time automatic situation assessment, genera
dynamically at least one indication related to the at least one close-in air co
communicating the at least one indication as guidance to the operating cre
least one aerial vehicle, wherein said automatic situation assessment relate
situation of a dog fight air combat between two aircraft vehicles.

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2. (Currently amended) The system as claimed in claim 1 wherein the assessme
information database comprises:
an aircraft characteristics file comprising an aircraft flight envelope, aircraft ma
energy graphs, models and limitations, and aircraft weapon system charact
a set of formulas for an optimal relative maneuvering file; and
an external information file.

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3. (Currently amended) The system as claimed in claim 1 further comprises at l
computer installed on the at least one aerial vehicle or on at least one ground station t
store, process and forward data specific for optimization of a conduct of an at least on
engagement.

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4. (currently amended) The system as claimed in claim 1 further comprising at l
off-board computer installed in at least one ground station to provide additional data s
for optimization of a conduct of the at least one close-in air combat.

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5. (Currently amended) The system as claimed in claim 1 further comprising at
sensor device installed on the at least one aerial vehicle to dynamically monitor physi
variables associated with aircraft vehicles participating in the at least one close-in air

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6. (Currently amended) The system as claimed in claim 1 further comprising at least one sensor device installed in an at least one ground station to monitor physical variables with at least one aircraft vehicles participating in the at least one close-in air combat.

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7. (Currently amended) The system as claimed in claim 1 further comprising at least one data communication network linking the at least one aerial vehicle and an at least one ground station to allow for transmission or reception of information associated with the at least one close-in air combat.

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8. (Currently amended) The system as claimed in claim 1 wherein the assessment and guidance software application comprises:

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an application control module to initiate, to activate, to control and to execute the assessment and guidance software application;

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a database interface module to allow for access the assessment information data to obtain records from the assessment information database;

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a parameters processor module to handle operational parameters of the aircraft;

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module to organize the information
received from various sources;

a situation analyzer and mapping module to analyze at least one situation concerning

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at least one close-in air combat; and

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a response assessment and response selector module to generate or select at least

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one response associated with an at least one current situation and an at least one situation.

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9. (Currently amended) The system as claimed in claim 8 wherein the assessment and guidance software application further comprises:

a future situations projector and mapping module to create at least one potential situation and associating the at least one potential future situation with the one current situation;

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module;

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a guidance generator module to convert at least one selected response to at least
guidance instruction;

a guidance display module to communicate at least one guidance instruction to t
operating crew;

an aircraft status and system status monitor;

a learning and adaptation module;

a history generator and history replay module;

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algorithms or

a set of rules module or algorithm;

a testing/maintenance/initialization module; and

a user interface module.

10. (Currently amended) The system as claimed in claim 1 wherein the at least c
computer further comprises the elements of:

a communication device to link the at least one computer to remote information
via an at least one data communication network;

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a processor device to execute a sequence of software instructions embedded in t
assessment and guidance software application;

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digital signal processor device to process digitally formatted information from a
one sensor device and from an at least one data communication network; a

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a data bus device to provide at least one data delivery channel among devices in

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an at least one on-board device.

11. (original) The system of claim 10 further comprising a sound synthesizing d
generate audio instructions to be communicated to the operating crew of the least one
vehicle.

12. (Currently amended) The system as claimed in claim 8 wherein the assessm
guidance software application further comprises any one of the elements of:

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an operating system to supervise and control execution of programs installed in
least one computer;

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a data link handler component to initiate transmission of outgoing information and
receive incoming information from an at least one data communication network;
an input/output handler component to supervise and control peripheral devices located
at the at least one computer;
a database handler component to initiate access to the assessment information database.

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13. (original) The system as claimed in claim 11 wherein the sensor device is an
instrument providing an indication as to parameters of flight.

14. (original) The system as claimed in claim 11 wherein the sensor device is a
positioning system device.

15. (cancelled)

16. (original) The system as claimed in claim 1 wherein the at least one aerial vehicle
is an unmanned combat aerial vehicle.

17. (cancelled)

18. (original) The system as claimed in claim 1 wherein the operating crew is a
located operator.

19. (original) The system of claim 3 wherein the at least one computer is an onboard
computer located within the at least one aerial vehicle.

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20. (Currently amended) The system as claimed in claim 1 further comprises a
display device to communicate an at least one instruction to the operating crew in a v
manner.

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21. (Currently amended) The system as claimed in claim 1 further comprises an
output device to communicate an at least one instruction to the operating crew in an a
manner.

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22. (Currently amended) The system as claimed in claim 1 further comprises a r
input device to communicate control information from the operating crew to the syste

23 - 26. (cancelled)

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27. (Currently amended) A method for optimizing a performance of an operating
at least one aerial vehicle during at least one close-in air combat by providing in real-
automatic situation assessment data and by generating dynamically at least one instru
by communicating the at least one instruction as guidance to the operating crew of the
one aerial vehicle, the method comprising the steps of:

for each one of at least two aerial vehicles:

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obtaining air combat engagement and energy information required for analysis c
combat situation;

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obtaining aircraft characteristics information required for the analysis of air com
situation;

obtaining aircraft weapon system characteristics information; and

obtaining remotely sensor-specific information;

analyzing the situation between the at least two aerial vehicles and mapping the
situation in relation to previously analyzed situations between the at least t
vehicles;

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potential air combat situation based on
the at least one mapped air combat
situation;

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potential air combat

determining at least one optimal state of the at least one aerial vehicle based on:
least one optimal air combat situation between the at least two aerial vehicle
generating at least one recommendation concerning a preferred maneuvering of
least one aerial vehicle based on the analyzed situation between the at least
aerial vehicles, aircraft characteristics and aircraft weapon system character
information.

28. (Currently amended) The method as claimed in claim 27 further comprises t
of:

transforming the at least one recommendation into at least one guidance indicat
displaying the at, least one guidance indicator to the operating crew of the at lea
aerial vehicle to enable an application of associated commands to the cont
aerial vehicle.

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29. (Currently amended) The method as claimed in claim 27 further comprises
transforming the at least one recommendation into at least one direct input commands
automatically applied to suitable controls of the at least one-aerial vehicle.

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30. (Currently amended) An apparatus for optimizing the performance of an ope
crew of at least one aerial vehicle during at least one close-in air combat by providing
time automatic situation assessment, the apparatus comprising:

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a device for: obtaining air combat engagement and energy information required
analysis of the air combat situation;
obtaining aircraft characteristics information required for the analysis of the air
situation;
obtaining aircraft weapon system characteristics information; and
obtaining remotely sensor-specific information;
an analysis device for:

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analyzing the situation between the at least two aerial vehicles and mapping the situation in relation to the previously analyzed situations between at least two vehicles;

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potential air combat situation based on
the at least one mapped air combat
situation;

based on the analysis determine at least one optimal state of the at least one aerial vehicle based on the at least one optimal air combat situation between the at least two vehicles; and

generating at least one recommendation based on the at least one optimal future air combat situation between the at least two aerial vehicles.

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31. (original) The apparatus as claimed in claim 30 further comprises:

a transforming device for transforming at least one recommendation into at least one guidance indicator; a display device for displaying the at least one guidance indicator to the operating crew of the at least one aerial vehicle to enable the application of the associated commands to the controls of the aerial vehicle;

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32. (original) The apparatus as claimed in claim 30 further comprises a transforming device for transforming the at least one recommendation into at least one direct input command to be automatically applied to suitable controls of the at least one aerial vehicle;

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33. (Previously added) The system as claimed in claim 1, further comprising an identifying element for identifying the aerial vehicle;

34. (Previously added) The system as claimed in claim 1, wherein the assessment guidance software application provides accurate speed and direction guidance.

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35. (Currently amended) The system as claimed in claim 1, wherein the assessment guidance software application provides guidance according to a flight path of an adverse aircraft.

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36. (Previously added) The system as claimed in claim 1, wherein at least a port situation assessment is a function of ammunition data.